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HEMLOCK

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A HEMLOCK TREE

To-day the hemlock ranks fourth among Canadian trees as a source of saw-timber. Years ago the only part of the tree considered to be valuable was the bark, which was, and still is, used extensively for tanning. The wood is also used for the making of wood-pulp. Even when the hemlock is growing in the forest, the branches are very persistent and the tree does not prune itself well, as the pine and the spruce do. The result is that the lumber produced from the tree is frequently knotty.

HEMLOCK — Tsuga canadensis

Common names: Hemlock, eastern hemlock, Canadian hemlock, hemlock spruce (England), white hemlock.

French names: Pruche, Pérusse (France), tsuga du Canada, sapin du Canada.

The hemlock of Eastern Canada is found from Nova Scotia westward throughout the St. Lawrence river valley and Ontario to the west end of lake Superior. In the United States it is found in Michigan, Wisconsin, Minnesota, and in the northeastern states, extending southward along the Appalachian mountains to Georgia and Alabama. This is one of three species of hemlock found in Canada. The others are the western hemlock (*Tsuga heterophylla*) and the black hemlock (*Tsuga Mertensiana*), both practically confined to British Columbia. Since the range of these does not coincide with that of the Eastern hemlock, there is little chance of confusion.

ANNUAL CONSUMPTION

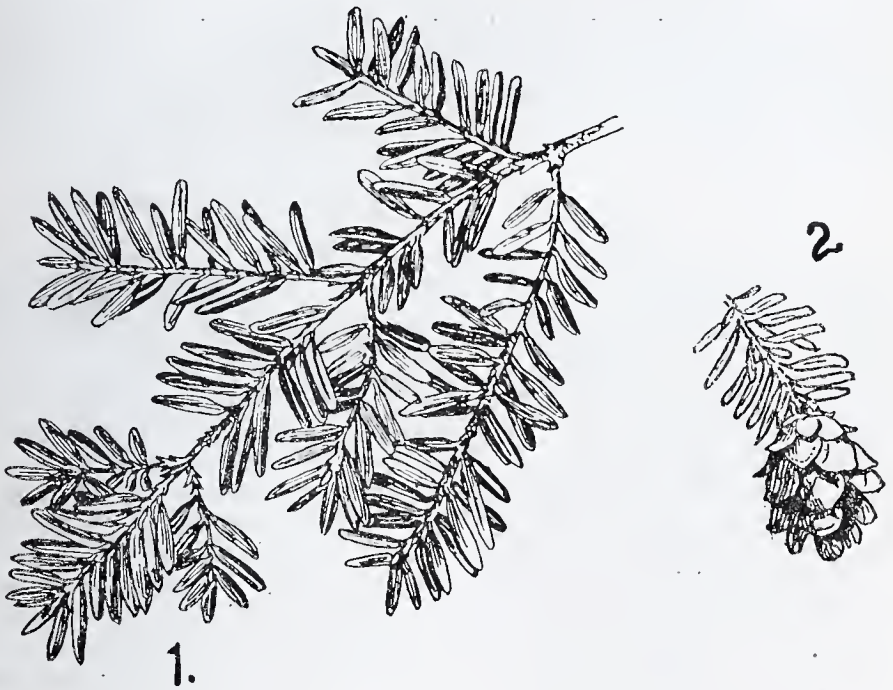
For years the hemlock was despised as a lumber tree, and it is only since a scarcity of better timber began to be felt that a market has been developed for its lumber. The bark was at one time the only part of the tree considered as of commercial value. It was one of the first tanning materials used in this country, and is still used to a considerable extent for this purpose. Large numbers of the finest hemlock trees have been cut for the bark alone, and thousands of splendid logs were left to burn and rot in the forests. Fortunately this waste is not going on to-day, for now the wood is more valuable than the bark. At present hemlock occupies fourth place as a lumber producer in Canada, with an average annual cut of about 250,000,000 feet board measure. The Eastern hemlock forms approximately 85 per cent of this lumber, and the remainder is cut for the most part from the Western hemlock.

At first only the best grades of hemlock lumber found a market, but with increasing scarcity of better woods the lower grades have now come into use for box manufacture, crating, and other purposes for which a high-grade lumber is not required. The tree produces only a small percentage of first-grade material. Many of the older trees have the defect known as "shake," which is a tearing apart of the wood between annual rings due to wind. "Shaky" lumber splits readily. There is also a multitude of hard knots in the lumber, especially when sawn from the smaller trees or from top logs. This is due to the persistent branches of the hemlock.

HABIT AND CHARACTERISTICS

The mature hemlock usually reaches a height of 60 to 70 feet and a diameter of $1\frac{1}{2}$ to 2 feet. Under very favourable conditions in good soil it occasionally becomes over 100 feet high and 3 to 4 feet in diameter. The trunk is very straight and undivided but very much tapered from the base upward. The branches are remarkably persistent and in mature trees commonly cover two-thirds of the trunk, forming a dense, long, conical crown. Numerous small dead sound stubs may be found almost to the ground. The branchlets are very slender and flexible.

The bark of the trunk is from 2 to 3 inches thick on old trees and, as pointed out, is an important source for tanning extract. The colour of the bark is reddish-brown, and the surface is roughened with shallow furrows and narrow scaly ridges.



Hemlock Foliage and Cone: (1) Foliage; (2) Cones.

The leaves (see Fig. 1) are flat, blunt, half an inch long, dark-green on the upper side with pale lines beneath. They are distinctly stalked, each leaf having a tiny thread-like stem by which it is attached to a small projection on the bark of the twig. This feature enables one to distinguish it readily from the firs (*Abies*), with which it might be confused. The leaves are twisted and arranged in two distinct ranks, one on each side of the twig, like those of the firs.

The cones (see Fig. 2) are very small, from one-half to three-fourths of an inch long, and of equal breadth when dry and open. They are stalked and hang downward from the twig. The seed is winged and tiny. About 400,000 cleaned seeds (free of wings) are required to weigh a pound.

THE WOOD: QUALITIES AND USES

The wood is fairly stiff, but rather harsh and splintery. It holds nails well. It is very subject to rot when placed in contact with the soil unless it has been treated with a preservative. It is not, therefore, the most desirable wood for building sills or railway ties, although large quantities are used for the latter purpose. Where hemlock is kept dry or entirely immersed in water it is very durable.

The greater part of the hemlock lumber produced is used in its rough form for joists, rafters, sheeting, boxes, crates, concrete forms, etc., purposes for which it is well adapted. The better grades are sometimes used for the interior finish and floors of inexpensive houses. It is used to a very limited extent in Canada for the manufacture of wood-pulp, but in the eastern United States, owing to the scarcity of spruce, it is of considerable importance as a pulp producer.

The wood of the Western hemlock is very much superior to that of the Eastern species. Lumbermen in their efforts to overcome the prejudice created by the name "hemlock" have made use of such names as "Grey fir" and "Alaska pine" when marketing the Western species.

REPRODUCTION AND PLANTING

The hemlock may be used to advantage in many locations for decorative planting. During youth it is a beautiful and graceful tree. Its sprays of branchlets and twigs form a delicate tracery of evergreen foliage. The annual shoots and branch-tips have not the rigidity common to most evergreens. The "leader," or tip, of the tree droops whip-like. The tree is a good shade-endurer and can be used in many positions where other trees would not do well.

The hemlock makes its best growth on fresh moist soil. It is rarely found in pure stands in Canadian forests, but is more commonly found in mixture with spruce, fir, pine, birch, and maple. It is a prolific seed-bearer but reproduces poorly. There is very little second-growth hemlock replacing the trees now being cut. This is perhaps due to the fact that cutting opens up the stands to a great extent. The shallow roots of the hemlock are extremely sensitive to the drying out of the soil.

In spite of its present importance it is doubtful whether the hemlock will continue to hold its place in the forests of the future. It is not a promising tree for forest planting. Pine and spruce are more easily grown, grow more rapidly, and yield better lumber than hemlock on the same site. When the day comes that Canada's forest areas are under more intensive management, as come it must if her people are not to lose the revenue from a large part of their lands, the hemlock will probably find a place only on the sites not suited for more desirable species.